

*cancel*  
an analog-digital subsystem, including

an amplifying means, providing an amplification of said output;

a pulse forming means, converting each amplified signal to a digital form pulse with a duration adequate to the duration of the appropriate output signal of said light detecting system;

a control subsystem, including

a microprocessor subsystem, providing said control functions and a processing of each said digital form pulse by strobing of said each digital form pulse by strobe pulses of a strobe pulse sequence, creating an appropriate strobe pulse packs containing a quantity of said strobe pulses which is proportional to the size of said particles;

a terminal means connected to said microprocessor subsystem; and

wherein said light detecting system is connected to said analog-digital subsystem, which is connected to said control subsystem.

### Remarks

Claims 32-40 are pending in this application.

Claim 37 is canceled, claims 32-36 and 38-40 are substituted new claims 41-46. **No new matters added, no new claims added.** (P.S. The new claims 41-46 are renumbered in sequence in respect of claims 32-36 and 38-40, i.e.: 38 → 41; 39 → 42; 40 → 43; 32 → 44; 33 → 45; 34, 35, 36 → 46).

The Specification is amended as required by Examiner.

### **The objection to the Specification under 35 U.S.C. 132.**

*[T]he applicant's amendment to page 9 and claims 26 and 30 in which the limitation "terminal means includes at least one of floppy disk means and an external interface means" is not disclosed in the original disclosure. Applicant is required to cancel the new matter in the replay to this Office Action.*

Applicant respectfully traverse this objection.

This limitation was reprinted from pages 11-12. Applicant has deleted the applicant's amendment to the page 9: "terminal means includes at least one of floppy disk means and an external interface means", as it is required by Examiner, to overcome the objection under 35 U.S.C. 132 (the claims 26 and 30 has been canceled on May 13, 1999 - see Preliminary Amendment from May 13, 1999, and has not been presented in the claims 32-40. Additionally, the identical limitation is deleted from pages 11-12 too - see below in this Amendment).

Thus, the 35 U.S.C. 132 objection should be withdrawn.

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**The claims 32-40 rejection under 35 U.S.C. 103.**

*Claims 32-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zinner (3,591,290) in view of Brittenham et al (5,059,395)*

Applicant respectfully traverse this rejection.

**OA (page 3, item 5):**

*Zinner discloses a urological apparatus and method which has all the features of the present invention except that a low power light source means is used; however, Zinner teaches that light source may produce light in any part of the visible spectrum or at invisible wavelengths (column 4 line 17-20); in addition, using a low power light source for determining the particle size is well known in the art as mentioned by the applicant in page 2 line 5. Thus, those of ordinary skill in the art at the time the invention was made to include in Zinner a low power light source because this is known light source which is known to serve the purpose of Zinner of determining the size of drops in the urine stream.*

**Applicant's Arguments:**

1) **Zinner** discloses the method and uroanalyzer for measuring characteristics of the **drops** (P.S. The size of the drops in urine stream might be over at least as 1 millimeter), using for this purpose "a thin and relatively wide light sheet" (column 3, line 58), but applicant discloses the method and apparatus for measuring **particles** at least as small as 0.1 $\mu$ m (micron) /see page 5, line 3 of applicant's Specification/, using for this purpose the single (narrow) light beam, therefore, **Zinner's** apparatus, having "a thin and relatively wide light sheet to determine *"the size of the drops in the urine stream"* (OA, page 3 line 1 of the bottom), is not compatible with the applicant's invention.

2) Applicant has not claimed a low power light source "as is" (as independent device). Applicant uses the low power light source just as one step of the new combination of the steps and just as one executive means of the new executive means combination.

3) **Zinner** uses "impulse amplitude" **and** "the time intervals" ("the impulse amplitude" - for measuring of the drop size, and "the time intervals" between pulses - for measuring drop velocity), but the applicant's method and device do not use the pulse amplitude for particle size determination and provide the particle measuring **by a quantity of the strobe pulses within each pulse (impulse).**

**OA (page 4, item 5):**

*Regarding claim 35, Zinner does not explicitly teach that an analog to digital converter is connected to the amplifier and to computer; however, such features are known in the art, for example taught by Brittenham et al, from the same the same field of endeavor, discloses a particle analyzing apparatus in which the A/D converter (20) is connected to the detector (16) and the processor (22) for the same purpose of determining the size of the particles (figure 1). Those of ordinary skills in the art ...*

**Applicant's Arguments:**

4) **Brittenham et al** discloses the particle analysis **"applied to blood cell"** (see Abstract),



wherein, is used an A/D converters (analog-digital converters) 18, 20 for processing of the "height and width" of the generated pulses (see claim 1, line 7). As known from the Electronic field, the A/D converter converts the analog input signals to the output digital code (for example, to a binary code) and comprises the comparator for comparison of the analog input signals with the reference voltage in order to produce an appropriate digital code, that is absolutely missing in the applicant invention which eliminates the voltage comparison. For this purposes in applicant's invention is disclosed an analog-digital **subsystem (not a converter as in the referred Brittenham et al)**, providing a converting of the analog signals to the digital form pulses for subsequent strobing them by the serial sequence of strobe pulses for the particle size and quantity determination, and also in applicant's invention the "height" (amplitude) is not used for the particle characteristics determination.

5) With regards to the proposed combination of **Zinner** in view of **Brittenham et al** (OA: [Z]inner *does not explicitly teach that an analog to digital converter is connected to the amplifier and to computer; however, such features are known in the art, for example taught by Brittenham et al* ...) It is well known that in order for any prior art references themselves to be validly combined for the use in prior art paragraph 103 rejection, **the references themselves [or some other prior art] must suggest that they be combined**. For instance, as it was stated in **In re Sernaker**, 217 U.S.P.Q. 1,6 (C.A.F.C. 1983):

"[P]rior art references in combination do not make an invention obvious unless something in the prior art references would suggest the advantage to be derived from combining their teaching."

but no one of the referred patents (**Zinner, Brittenham et al**) does not make such suggestion - to comprise an analog-digital subsystem (not a converter as in Brittenham et al), connected to a light detecting system ant to a control subsystem, including ... and providing a strobing of the pulses (impulses) by the serial sequence of strobe pulses for the particle size and quantity determination).

That the suggestion to combine the references should not come from applicant was forcefully stated in **Orthopedic Equipment Co. v. United States**, 217 U.S.P.Q. 193, 199 (C.A.F.C. 1983):

"It is wrong to use the patent in suit [here means the patent application] as a guide through the maze of prior art references, combining the right references in the right way to achieve the result of the claims in suit [here means the claims pending]."

**Additionally**, in compliance with the stated by PTO reasons, the later Patents, using A/D converter, should logically be rejected under obviousness, considering the "ordinary skills" of the use of the A/D converter "as taught by Brittenham et al" (for example, the later Patent by Nakamoto et al No. 5,325,169, wherein are used A/D converters /24/, /29/ and the later Patent by Fujino et al No. 5,907,399, wherein is used A/D converter /11/), but these patents were allowed to issue. But according to OA from 04/12.98, the applicant has canceled (see Amendment from 11/03/1998) claims 2 and 3, Fig.9 and the disclosure in specification regarding A/D converter (see, for example the canceled Fig.9 in the applicant's original application), **therefore, such PTO reference is a formal and absolutely unfounded**.

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**OA (page 4, item 5):**

*Regarding claim 36, see processor (22) and display (30) in figure 1 of Brittenham et al.*

**Applicant's Arguments:**

6) Applicant has not claimed the processor or display "as is" (as independent device). Applicant uses a microprocessor subsystem just as one executive element of a control subsystem of a processing system of the new and unobvious combination of the executive means of the new particle counting and measuring device and word "display" is not presented in the applicant's claims 32-40.

**Additionally**, see processor/unit (44) and display (46) on Fig.4 in the earlier (earlier than the referred patent by Brittenham et al) patent by Tatsuno No. 4,595,291, that in compliance with the stated by PTO reasons, the referred Patent by Brittenham et al, using "processor (22) and display (30)", should logically be rejected under obviousness, considering the "ordinary skills" of the use of the processor and display "as taught by Tatsuno", but the patent by Brittenham et al was issued and referred to the applicant. Further, also see processor/computer (12), in the later (later than the referred patent by Brittenham et al) patent by Fujino et al No. 5,907,399, that in compliance with the stated by PTO reasons the later Patent by Fujino et al should logically be rejected under obviousness, considering the "ordinary skills" of the use of the processor "as taught by Tatsuno and by Brittenham et al", but the patent by Fujino et al No. 5,907,399 was issued.

**OA (page 4, item 5):**

*Regarding claim 37, see optical fiber means 16 and 18 of Zinner.*

**Applicant's Arguments:**

7) **Zinner** discloses the method and uroanalyzer for measuring characteristics of the **drops** using for this purpose "a thin and relatively wide light sheet" (column 3, line 58), produced by the optical fiber means 16 and 18. The applicant has not disclosed the plurality of "optical fiber means" for "a thin and relatively wide light sheet" creation and, therefore, the "optical fiber means" 18 is missing in the applicant invention and applicant uses a singular fiber optic connecting means, as it is also described in the above item 1) of the applicant's arguments. But the later patent (later than the applicant's application [see page 9 of Amendment from 11/03/99] and than Zinner) by Chandler et al, which was earlier referred to applicant by Office Action from 04/15/98, uses the plurality of the "optical fiber means", and in compliance with the stated by PTO reasons, the patent by Chandler et al, using the plurality of "optical fiber means" should logically be rejected under obviousness, considering the "ordinary skills" of the use of the plurality of "optical fiber means" "as taught by Zinner", but the patent by Chandler et al was issued.

**Additionally**, regarding workless (in the applicant's opinion) of the mentioned and earlier referred by PTO patent by Chandler et al No. 5,731,875 see in the Amendment from 11/03/98.

8) Applicant has not claimed the fiber optic connecting means "as is" (as independent device, as it is presented, for example, in the later patent by Chandler et al). Applicant uses a fiber optic connecting means just as one executive element of a control subsystem of a processing system of the new and unobvious combination of the executive means of the new particle counting and measuring device in the dependent claim (see claim 37).

**However**, in order to overcome the dissension between PTO and applicant, applicant has canceled the claim 37.

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**OA (page 4, item 5):**

*Regarding claim 38-40 are read on the combination of Zinner and Brittenham et al.*

**Applicant's Arguments:**

9) Neither **Zinner** nor **Brittenham** et al nor their combination are absolutely not read the applicant's new and unobvious combination of the steps (methods) and/or the applicant's new and unobvious combination of the executive elements (device), comprising the steps of:

providing by a light detecting system an output which is effectively indicative of a size of said particles intersecting said light beam within a particle monitoring region of said light detecting system so that said particles are monitored within said particle monitoring region, and wherein a light, created by the intersection of said particles with said light beam, is proportional to said output;

amplifying said output by an amplifying means;

converting each amplified signal to a digital form pulse having an adequate duration with said output;

forming the strobe pulse packs by strobing of the digital form pulses by strobe pulses of a strobe pulse sequence, and wherein each strobe pulse pack contains at least one strobe pulse of said strobe pulse sequence;

counting a quantity of said strobe pulses within said each strobe pulse pack;

selecting and sorting a plurality of strobe pulse packs by an identical quantity of said strobe pulses within said each strobe pulse pack of said plurality of strobe pulse packs;

counting a quantity of the identical strobe pulse packs.

**and**

providing a light detecting system, including a chamber, having a particle monitoring region;

providing a low power light source means forming said light beam directed through said particle monitoring region to a light detection means placed within said chamber on a light beam axis;

providing an intersection of said particles with said light beam at a point within said particle monitoring region so that said particles are monitored in said chamber, and wherein said intersection is occurred at said point located on said light beam axis and substantially in an area of said light detection means between the light source means and said light detection means;

non-optic imaging detecting of a light created by said intersection of said light beam with said particles flowing through said particle monitoring region of said light detecting system, and providing an output which is effectively indicative of a duration of said light proportional to a size of said particles.

amplifying and converting said output to the adequate duration digital form pulses;

processing said digital form pulses by strobing of said digital form pulses by strobe pulses of a strobe pulse sequence, and wherein a quantity of said strobe pulses within each digital form pulse is effectively indicative of the particle size.

**and**

including:

a light detecting system, providing a non-optic imaging detection of said particles and comprising

a chamber, having a particle monitoring region within which said light beam intersects said particles at a point on a light beam axis;

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a low power light source means forming said light beam directed to said particle monitoring region so that said particles are monitored at said point;

a light detection means placed within said chamber on said light beam axis so that said point of said particle monitoring region is located substantially in the light detection means area between the light source means and said light detection means, and wherein said light detecting system provides an output which is effectively indicative of a duration of a light, created by the intersection of said light beam with said particles, and proportional to a size of said particles; and

a processing system, providing control functions and processing of said output and comprising

an analog-digital subsystem, including

an amplifying means, providing an amplification of said output;

a pulse forming means, converting each amplified signal to a digital form pulse with a duration adequate to the duration of the appropriate output signal of said light detecting system;

a control subsystem, including

a microprocessor subsystem, providing said control functions and a processing of each said digital form pulse by strobing of said each digital form pulse by strobe pulses of a strobe pulse sequence, creating an appropriate strobe pulse packs containing a quantity of said strobe pulses which is proportional to a size of said particles;

a terminal means connected to said microprocessor subsystem; and

wherein said light detecting system is connected to said analog-digital subsystem, which is connected to said control subsystem.

**Thus, the applicant has canceled the claims 32-40 and substituted new Claims 41-46 to overcome the rejection under 35 U.S.C. 103(a), therefore the rejection under 35 U.S.C. 103(a) should be withdrawn.**

### **Response to Arguments.**

Applicant respectfully traverse the Examiner's response to the applicant's argument.

#### **QA (pages 4-5, item 6):**

*[A]pplicant's remarks, pages 6-7, argue that the new matter "terminal means includes at least on of floppy disk means and an external interface means" was misprinted in the original specification is not acceptable because the applicant fails to show the evidences how this limitation is misprinted. As seen from the last paragraph of page 11 through page 12, the Examiner does not see misprinted error. Thus, the argument is not deemed to be persuasive.*

#### **Applicant's Arguments:**

This limitation was erroneously not printed on the top of page 12 of the original specification and with the apologize was amended by the first applicant's Amendment from May 27, 1998, i.e. the last line on page 11 does not logically related with the first line on page 12, because on the top of page 12 is erroneous misprinted the mentioned above limitation: "... floppy disk means

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and an external interface means (all of them not shown). The control subsystem 13 also includes the self-diagnostic and calibration means (not shown), connected to an analog-digital ...", but two last lines on page 12 were erroneously again printed as the first two lines on page 13, providing therefore the same format of page 12 and the following pages.

However, in order to overcome the dissension between PTO and applicant, applicant has amended pages 11, 12 of specification, deleting the phrases, for which the applicant's "arguments are not deemed to be persuasive" for PTO.

### CONCLUSION

During the time of prosecution, PTO already referred 7 (seven - five and two) Patents:

Staff et al (5,619,333);

Chandler et al (5,731,875);

Schmitz et al (5,610,712);

Tatsuno (4,595,291);

Nakamoto et al (5,325,169);

Zinner (3,591,290);

Brittenham et al (5,059,395)

and 2 (two - one and one) combinations of the referred Patents in view one of another:


Nakamoto et al (5,325,169) in view of Schmitz et al (5,610,712);

Zinner (3,591,290) in view of Brittenham et al (5,059,395).

Once (12/23/98) applicant received the unreasonable (erroneous) PTO Notice of Abandonment and as a result - over six (6) months for the response on the applicant's amendment.

An improved method and device by applicant's invention, disclosing and claiming a new, previously unrecognized and unobvious step combination (method) and new, previously unrecognized and unobvious combination of the executive means, realizing the new and unobvious method (realizing a new sequence of operations), provide the processing of the detected signal by strobing them by the serial sequence of the strobe pulses and analyzing of the quantity of the strobe pulses within each formed strobe pulse pack for particle size and quantity determination, that are the **advantages** of the applicant's invention, providing a **commercial success** in the **crowded particle counting and measuring apparatus field**.

None of the cited references in the view of the others teaches, mentions or suggests the recitation of the disclosed and claimed **new (unsuggested)** and **unobvious** step combination, as it recited in the applicant's substituted new claims 41-45; none of the cited references in the view of the others teaches, mentions or suggests the recitation of the disclosed and claimed **new (unsuggested)** and **unobvious** combination of the executive means, realizing the new and unobvious steps of claims 41-45, as it recited in the applicant's substituted new claim 46, providing processing of the detected signal by strobing them by the serial sequence of the strobe pulses and analyzing of the quantity of the strobe pulses within each formed strobe pulse pack for particle size and quantity determination.



There was no prior art found and referred that suggested modification or combination with the cited art so as to satisfy combination of the present substituted new independent claims 41, 44 and 46; especially, the prior art does not teach, mention or suggest:

**to provide by a light detecting system an output which is effectively indicative of a size of said particles intersecting said light beam within a particle monitoring region of said light detecting system so that said particles are monitored within said particle monitoring region, and wherein a light, created by the intersection of said particles with said light beam, is proportional to said output;**

**to amplify said output by an amplifying means;**

**to convert each amplified signal to a digital form pulse having an adequate duration with said output;**

**to form the strobe pulse packs by strobing of the digital form pulses by strobe pulses of a strobe pulse sequence, and wherein each strobe pulse pack contains at least one strobe pulse of said strobe pulse sequence;**

**to count a quantity of said strobe pulses within said each strobe pulse pack;**

**to select and sort a plurality of strobe pulse packs by an identical quantity of said strobe pulses within said each strobe pulse pack of said plurality of strobe pulse packs;**

**to count a quantity of the identical strobe pulse packs,**

**and**

**to provide a light detecting system, including a chamber, having a particle monitoring region;**

**to provide a low power light source means forming said light beam directed through said particle monitoring region to a light detection means placed within said chamber on a light beam axis;**

**to provide an intersection of said particles with said light beam at a point within said particle monitoring region so that said particles are monitored in said chamber, and wherein said intersection is occurred at said point located on said light beam axis and substantially in an area of said light detection means between the light source means and said light detection means;**

**to provide a non-optic imaging detection of a light created by said intersection of said light beam with said particles flowing through said particle monitoring region of said light detecting system, and providing an output which is effectively indicative of a duration of said light proportional to a size of said particles.**

**to amplify and convert said output to the adequate duration digital form pulses;**

**to process said digital form pulses by strobing of said digital form pulses by strobe pulses of a strobe pulse sequence, and wherein a quantity of said strobe pulses within each digital form pulse is effectively indicative of the particle size.**

Accordingly, the specification has been amended, claims 32-40 have been canceled and substituted new claims 41-46.

Thus, the objection under 35 U.S.C. 132 and rejections under 35 U.S.C. 103(a) should be withdrawn.

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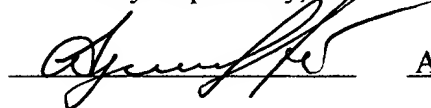
In view of the foregoing amendments, substitutions and accompanying remarks, the rejections of original Claims 32-40 as substituted by new claims 41-46, should be withdrawn.

Applicant as pro-se applicant, again respectfully request under M.P.E.P. 707.07(j), that if the Examiner feels that applicant's present claims are not entirely suitable, the Examiner drafts one or more allowable claims for applicant.

If, for any reason, it is felt that this application is not now in condition for allowance, the Examiner is requested to contact applicant, at the telephone number indicated below, to arrange for an interview to expedite the disposition of this case.

For all the reasons given above, applicant respectfully submits that the errors in the specification are corrected and the claims comply with Sections 132 and 103. Accordingly, applicant submits that this application is now in full condition for allowance, which action applicant respectfully solicits.

Very respectfully,



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June 23, 1999

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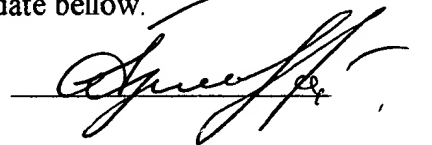
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I certify that this correspondence will be deposited with the United States Postal Service as Certified (# Z 254 662 727) First Class Mail proper postage affixed in an envelope addressed to "Assistant Commissioner for Patents, Washington, DC 20231" on the date below.

Date: June 23, 1999

Applicant: Aleksandr L. Yufa, Ph.D.



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